

CLAIMS

What is claimed is:

1. An axle driving apparatus for use in a vehicle having an axle and at least one wheel driven by the axle, the apparatus comprising:
 - 5 a wheel hub engaged to the driven wheel and comprising a generally cylindrical portion having a first engagement structure located on an interior surface thereof;
 - a slider member slidably mounted on and driven by the axle and comprising a second engagement structure located on an exterior surface thereof, wherein a portion of the slider member extends into the generally cylindrical portion of the wheel hub;
 - 10 an engagement device located between the slider member and the generally cylindrical portion of the wheel hub; and
 - means for moving the slider member between a first position, where the engagement device is engaged to both the first and second engagement structures and the axle is thereby engaged to the wheel hub, and a second position, where the engagement
 - 15 device is disengaged from at least one of the first or second engagement structures and the axle is thereby disengaged from the wheel hub.
2. An axle driving apparatus as set forth in Claim 1, further comprising at least one slot formed in the axle and a plurality of bearing balls located in the slot to engage the slider member.
- 20 3. An axle driving apparatus as set forth in Claim 1, wherein the means for moving the slider member comprises a plate.
4. A vehicle driving apparatus as set forth in Claim 3, wherein the plate is secured to the vehicle by two fasteners, and the length of the plate is greater than the distance

between the two fasteners such that the plate has two stable positions, wherein the first stable position causes the slider member to be disengaged from the wheel hub, and the second stable position causes the slider member to be engaged to the wheel hub.

5. An axle driving apparatus as set forth in Claim 1, wherein the engagement device
5 comprises a bearing having a plurality of caged balls secured therein.

6. An axle driving apparatus as set forth in Claim 1, further comprising a retaining ring secured to the slider member adjacent one end thereof to limit the axial movement of the slider member.

7. A vehicle driving apparatus as set forth in Claim 1, wherein the first engagement
10 feature comprises a plurality of slots integrally formed on the interior of the wheel hub.

8. A vehicle driving apparatus as set forth in Claim 1, wherein the second engagement feature comprises a plurality of slots integrally formed on the exterior of the slider member.

9. A vehicle driving apparatus as set forth in Claim 1, wherein the engagement
15 device is not engaged to either the first or the second engagement structures when in the second position.

10. An engagement apparatus for drivingly connecting a wheel hub to an axle, the apparatus comprising:

a generally cylindrical member extending from the wheel hub and having a first
20 engagement structure formed on the interior thereof;

a slider mounted on the axle and comprising a second engagement structure formed on an exterior surface thereof, wherein a portion of the engagement device extends into the generally cylindrical member; and

an engagement device located between the slider member and the generally
5 cylindrical portion of the wheel hub, whereby the slider has a first position where the engagement device is engaged to both the first and second engagement structures and a second position where the engagement device is not engaged to either the first or second engagement structures.

11. An engagement device as set forth in Claim 10, further comprising a plate for
10 moving the slider between the first and second positions.

12. An engagement device as set forth in Claim 11, wherein the plate is of an over-center design.

13. An axle driving apparatus as set forth in Claim 10, further comprising at least one slot formed in the axle and a plurality of bearing balls located in the slot to engage the
15 slider member.

14. An axle driving apparatus as set forth in Claim 13, wherein the engagement device comprises a bearing having a plurality of caged balls secured therein.

15. An axle driving apparatus as set forth in Claim 14, further comprising a retaining ring secured to the slider member adjacent one end thereof to limit the axial movement of
20 the slider member.

16. A vehicle driving apparatus as set forth in Claim 15, wherein the first engagement feature comprises a plurality of slots integrally formed on the interior of the wheel hub.

17. A vehicle driving apparatus as set forth in Claim 10, wherein the second engagement feature comprises a plurality of slots integrally formed on the exterior of the
5 slider member.

18. A vehicle driving apparatus as set forth in Claim 17, wherein the engagement device is not engaged to either the first or the second engagement structures when in the second position.

19. A vehicle comprising:

- 10 a frame having a prime mover mounted thereon;
a transmission driven by the prime mover and comprising a housing mounted on the vehicle frame and an axle extending from the housing;
a pair of wheel assemblies driven by the axle, each wheel assembly comprising:
a wheel hub comprising a generally cylindrical portion having a
15 first engagement structure located on an interior surface thereof;
a slider member slidably mounted on and driven by the axle and comprising a second engagement structure located on an exterior surface thereof, wherein a portion of the slider member extends into the generally cylindrical portion of the wheel hub;
20 an engagement device located between the slider member and the generally cylindrical portion of the wheel hub; and having a first position where the engagement device is engaged to both the first and second

engagement structures and a second position where the engagement device is disengaged from at least one of the first or second engagement structures.

20. A vehicle as set forth in Claim 19, wherein the axle is a single piece unit.
- 5 21. A vehicle as set forth in Claim 19, wherein the transmission further comprises a hydrostatic transmission.
22. A vehicle as set forth in Claim 19, further comprising a snow thrower mounted to the vehicle frame.